

Memory Profile

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1

Memory Profile

2 **1 Scope**

3 The DCIM Memory Profile describes the properties and interfaces for executing system management
4 tasks related to the management of memories (DIMMs) within a system. The profile standardizes and
5 aggregates the description for the memory properties into a memory view representation as well as
6 provides static methodology for the clients to query the memory views without substantial traversal of the
7 model.

8

9 **2 Normative References**

10 The following referenced documents are indispensable for the application of this document. For dated
11 references, only the edition cited applies. For undated references, the latest edition of the referenced
12 document (including any amendments) applies.

13 DMTF DSP1033, *Profile Registration Profile 1.0.0*

14 DMTF DSP0226, *Web Services for Management (WS-Management) Specification 1.1.0*

15 DMTF DSP0227, *WS-Management CIM Binding Specification 1.0.0*

16 *Dell Lifecycle Controller Best Practices Guide 1.0,*

17 http://en.community.dell.com/techcenter/extras/m/white_papers/20066173.aspx

18 *Dell WSMAN Licenses and Privileges 1.0*

19 Dell Tech Center MOF Library, <http://www.delltechcenter.com/page/DCIM.Library.MOF>

20

- DCIM_MemoryView.mof

21

- DCIM_LCEnumeration.mof

22

- DCIM_LCRegisteredProfile.mof

23

24 **3 Terms and Definitions**

25 For the purposes of this document, the following terms and definitions apply.

26 **3.1**

27 **conditional**

28 indicates requirements to be followed strictly in order to conform to the document when the specified
29 conditions are met

30 **3.2**

31 **mandatory**

32 indicates requirements to be followed strictly in order to conform to the document and from which no
33 deviation is permitted

34 **3.3**
35 **may**
36 indicates a course of action permissible within the limits of the document

37 **3.4**
38 **optional**
39 indicates a course of action permissible within the limits of the document

40 **3.5**
41 **referencing profile**
42 indicates a profile that owns the definition of this class and can include a reference to this profile in its
43 “Related Profiles” table

44 **3.6**
45 **shall**
46 indicates requirements to be followed strictly in order to conform to the document and from which no
47 deviation is permitted

48 **3.7**
49 **FQDD**
50 Fully Qualified Device Descriptor is used to identify a particular component in a system.

51 **3.8**
52 **Interop Namespace**
53 Interop Namespace is where instrumentation instantiates classes to advertise its capabilities for client
54 discovery.

55 **3.9**
56 **Implementation Namespace**
57 Implementation Namespace is where instrumentation instantiates classes relevant to executing core
58 management tasks.

59 **3.10**
60 **ENUMERATE**
61 Refers to WS-MAN **ENUMERATE** operation as described in Section 8.2 of DSP0226_V1.1 and Section
62 9.1 of DSP0227_V1.0

63 **3.11**
64 **GET**
65 Refers to WS-MAN **GET** operation as defined in Section 7.3 of DSP00226_V1.1 and Section 7.1 of
66 DSP0227_V1.0

67

68 **4 Symbols and Abbreviated Terms**

69 **4.1**
70 **CIM**
71 Common Information Model

72 **4.2**
73 **iDRAC**
74 integrated Dell Remote Access Controller – management controller for blades and monolithic servers

75 **4.3**
76 **CMC**
77 Chassis Manager Controller – management controller for the modular chassis

78 **4.4**
79 **WBEM**
80 Web-Based Enterprise Management
81

82 **5 Synopsis**

83 **Profile Name:** Memory
84 **Version:** 1.1.0
85 **Organization:** Dell
86 **CIM Schema Version:** 2.26 Experimental
87 **Dell Schema Version:** 1.0.0
88 **Interop Namespace:** root/interop
89 **Implementation Namespace:** root/dcim
90 **Central Class:** DCIM_MemoryView
91 **Scoping Class:** DCIM_ComputerSystem

92 The Dell Memory Profile is a component profile that contains the Dell specific implementation
93 requirements for memory view.

94 DCIM_MemoryView shall be the Central Class.

95 Table 1 identifies profiles that are related to this profile.

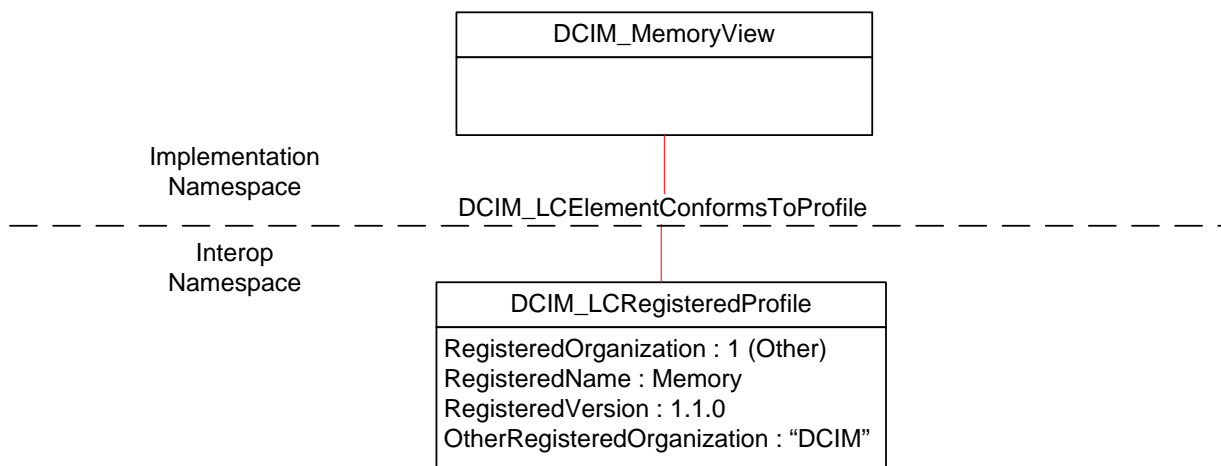
96 **Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship
Profile Registration	DCIM	1.0	Reference

97 **6 Description**

98 The Dell Memory Profile describes platform's physical memory. Each DIMM's information is represented
99 by an instance of DCIM_MemoryView class.

100 Figure 1 details the class diagram of the Dell Memory Profile.



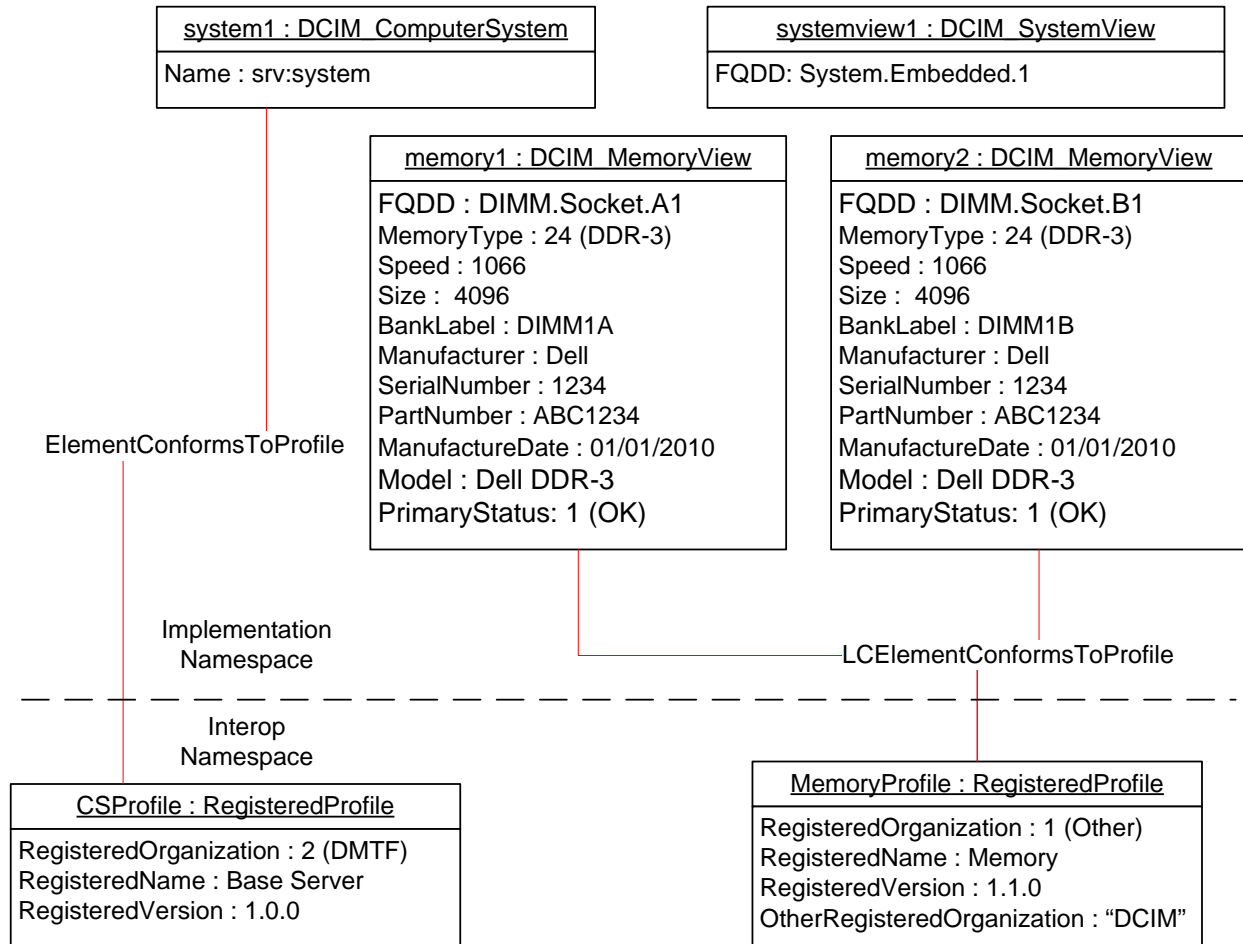
101

102

Figure 1 – Class Diagram

103 Figure 2 details typical Dell Memory Profile implementation for a platform containing two DIMMs. In order
 104 for client to discover the instrumentation's support of this profile, MemoryProfile is instantiated in the
 105 Interop Namespace. MemoryProfile instance describes the information about the implemented profile:
 106 most importantly, the name and version of the profile and the organization name that produced the profile.

107 Memory1 and memory2 are the memory views representing the two memories in the Implementation
 108 Namespace. They are associated to the Interop namespace's MemoryProfile instance.



109

110

Figure 2 – Memory Profile Implementation

111 **7 Implementation Description**

112 This section describes the requirements and guidelines for implementing Dell Memory Profile.

113 **Table 2 – Class Requirements: Memory Profile**

Element Name	Requirement	Description
Classes		
DCIM_MemoryView	Mandatory	The class shall be implemented in the Implementation Namespace. See section 7.1.
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the <i>Implementation Namespace</i> .
DCIM_LCElementConformsToProfile	Mandatory	The class shall be implemented in the <i>Interop Namespace</i> .
DCIM_LCRegisteredProfile	Mandatory	The class shall be implemented in the Interop Namespace. See section 7.2.
Indications		
None defined in this profile		

114

115 **7.1 Memory View**

116 This section describes the implementation for the DCIM_MemoryView class.

117 This class shall be instantiated in the Implementation Namespace.

118 The DCIM_LCElementConformsToProfile association(s) shall reference the DCIM_MemoryView
119 instance(s).

120 **7.1.1 Resource URIs for WinRM®**

121 The class Resource URI shall be “http://schemas.dell.com/wbem/wscim/1/cim-
122 schema/2/DCIM_MemoryView ?__cimnamespace=root/dcim”

123 The key property shall be the InstanceID.

124 The instance Resource URI for DCIM_MemoryView instance shall be:
125 “http://schemas.dell.com/wbem/wscim/1/cim-schema/2/DCIM_MemoryView?
126 ?__cimnamespace=root/dcim+InstanceID=<FQDD>”

127 **7.1.2 Operations**

128 The following table details the implemented operations on DCIM_MemoryView.

129 **Table 3 – DCIM_MemoryView - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI

130

131 **7.1.3 Properties**

132 The following table details the implemented properties for DCIM_MemoryView instance representing a
 133 memory in a system. The “Requirements” column shall denote the implementation requirement for the
 134 corresponding property. If the column “Property Name” matches the property name, the property either
 135 shall have the value denoted in the corresponding column “Additional Requirement”, or shall be
 136 implemented according to the requirements in the corresponding column “Additional Requirement”.

137 **Table 4 – DCIM_MemoryView - Properties**

Property Name	Requirements	Type	Requirement and description
InstanceID	Mandatory	string	The property value shall be the FQDD property value.
FQDD	Mandatory	string	The property shall represent, a string containing the Fully Qualified Device Description, a user-friendly name for the object.
MemoryType	Mandatory	uint16	The property shall represent the type of the physical memory.
Speed	Mandatory	uint32	The property value shall be in MHz and shall represent the maximum operating speed of the physical memory.
CurrentOperatingSpeed	Mandatory	uint32	The property value shall be in MHz and shall represent the current operating speed of the physical memory.
Size	Mandatory	uint32	The property value shall be in MB and shall represent the total size of the physical memory in MegaBytes.
BankLabel	Mandatory	string	The property shall represent a string identifying the physically labeled bank where the memory is located.
Manufacturer	Mandatory	string	The property shall represent the name of the organization responsible for producing the memory.
SerialNumber	Mandatory	string	The property shall represent a manufacturer-allocated number used to identify the physical memory.
PartNumber	Mandatory	string	The property shall represent the part number assigned by the organization that is responsible for producing or manufacturing the physical memory.
Model	Mandatory	string	The property shall represent the model of the memory.
ManufactureDate	Mandatory	string	The property shall represent manufacture date of the product.
Rank	Mandatory	uint8	The property shall represent the number of ranks for the memory.
PrimaryStatus	Mandatory	uint32	The property shall represent a high level status value, intended to align with Red-Yellow-Green type representation of status for the physical memory,
LastSystemInventoryTime	Mandatory	string	The property shall represent the last time \"System \"Inventory Collection

Property Name	Requirements	Type	Requirement and description
			On Reboot(CSIOR)\\" was performed. The value is represented as yyyyymmddHHMMSS.
LastUpdateTime	Mandatory	string	The property shall represent the last time the data was updated. The value is represented as yyyyymmddHHMMSS

138 7.2 Memory Profile Profile Registration

139 This section describes the implementation for the DCIM_LCRegisteredProfile class.

140 This class shall be instantiated in the Interop Namespace.

141 The DCIM_ElementConformsToProfile association(s) shall reference the DCIM_LCRegisteredProfile
142 instance.

143 7.2.1 Resource URIs for WinRM®

144 The class Resource URI shall be "http://schemas.dmtf.org/wbem/wscim/1/cim-
145 schema/2/CIM_RegisteredProfile?__cimnamespace=root/interop"

146 The key property shall be the InstanceID property.

147 The instance Resource URI shall be: ""http://schemas.dell.com/wbem/wscim/1/cim-
148 schema/2/DCIM_LCRegisteredProfile?__cimnamespace=root/interop+InstanceID= DCIM:Memory:1.0.0"

149 7.2.2 Operations

150 The following table details the implemented operations on DCIM_LCRegisteredProfile.

151 **Table 5 – DCIM_LCRegisteredProfile - Operations**

Operation Name	Requirements	Required Input
Get	Mandatory	Instance URI
Enumerate	Mandatory	Class URI

152

153

154 7.2.3 Properties

155 The following table details the implemented properties for DCIM_LCRegisteredProfile instance
156 representing Memory Profile implementation. The "Requirements" column shall denote the
157 implementation requirement for the corresponding property. If the column "Name" matches the property
158 name, the property either shall have the value denoted in the corresponding column "Additional
159 Requirements", or shall be implemented according to the requirements in the corresponding column
160 "Additional Requirements".

161 **Table 6 – DCIM_LCRegisteredProfile**

Property Name	Requirement	String	Additional Requirements
InstanceID	Mandatory	String	DCIM:Memory:1.0.0
RegisteredName	Mandatory	String	This property shall have a value of "Memory".

Property Name	Requirement	String	Additional Requirements
RegisteredVersion	Mandatory	String	This property shall have a value of "1.1.0".
RegisteredOrganization	Mandatory	Uint16	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	String	The property value shall match "DCIM".
AdvertisedTypes[]	Mandatory	Uint16	This property array shall contain [1(Other), 1 (Other)].
AdvertiseTypeDescriptions[]	Mandatory	String	This property array shall contain ["WS-Identify", "Interop Namespace"].
ProfileRequireLicense[]	Mandatory	String	This property array shall describe the required licenses for this profile. If no license is required for the profile, the property shall have value NULL.
ProfileRequireLicenseStatus[]	Mandatory	String	This property array shall contain the status for the corresponding license in the same element index of the ProfileRequireLicense array property. Each array element shall contain: <ul style="list-style-type: none"> • "LICENSED" • "NOT_LICENSED" If no license is required for the profile, the property shall have value NULL.

162

163 8 Methods

164 This section details the requirements for supporting extrinsic methods for the CIM elements defined by
165 this profile.

166 No additional details specified.

167 9 Use Cases

168 See *Lifecycle Controller (LC) Integration Best Practices Guide*.

169 10 CIM Elements

170 No additional details specified.

171 11 Privilege and License Requirement

172 The following table describes the privilege and license requirements for the listed operations . For the
173 detailed explanation of the privileges and licenses, refer to the Dell WSMAN Licenses and Privileges
174 specification.

175 **Table 7 – Privilege and License Requirements**

Class and Method	Operation	User Privilege Required	License Required
------------------	-----------	-------------------------	------------------

Class and Method	Operation	User Privilege Required	License Required
DCIM_MemoryView	ENUMERATE, GET	Login	LM_REMOTE_ASSET_IN VENTORY
DCIM_LCRegisteredProfile	ENUMERATE, GET	Login	None.
DCIM_LCElementConformsToProfile	ENUMERATE, GET	Login	None.

176

177
178